
Systematics, distribution and vocalisations of Papyrus Yellow Warbler *Chloropeta gracilirostris*

Ilya Maclean^a, John Musina^b, Nicodemus Nalinya^b, Simon Mahood^a, Rob Martin^a
and Achilles Byuaruhanga^a

Les auteurs analysent la systématique du Chloropète aquatique *Chloropeta gracilirostris* et présentent quelques notes supplémentaires sur son apparence et ses vocalisations. Cette espèce comprend deux ou trois populations isolées. Le taxon actuellement considéré comme la sous-espèce nominale est connu principalement de la vallée du Rift albertin et de quelques marécages au Kenya occidental. *C. g. bensoni* n'est connu que de la Luapula en Zambie et en République Démocratique du Congo. Il a été suggéré auparavant que la population du Kenya est spécifiquement distincte des deux autres, les spécimens de cette population détenus dans les musées ayant un bec considérablement plus étroit. Ceci n'est toutefois pas confirmé par les mensurations prises sur des oiseaux vivants. Néanmoins, les vocalisations de chaque population semblent différer. Des conclusions quant à l'isolement génétique de ces populations ne peuvent toutefois être proposées sans de plus amples recherches.

Papyrus Yellow Warbler *Chloropeta gracilirostris* Ogilvie-Grant¹⁵ is among the least adequately protected birds in East Africa⁹. Its habitat is under increasing threat: extensive swamp drainage has occurred to grow crops and, more recently, to permit dairy farming. Existing swamps are often encroached by farmers or degraded by over-harvesting of papyrus, which is used as fuel or in local crafts. These problems have been compounded by the collapse of Lake Victoria fisheries as a result of the rapid invasion of Water Hyacinth *Eichhornia crassipes*, forcing local people to seek other forms of livelihood. Elsewhere, a shortage of productive land as a result of rapid population growth has resulted in the same problem. Often the only alternative is to cut papyrus or to reclaim swamps to grow crops.

Currently, Papyrus Yellow Warbler is considered globally threatened and categorised as Vulnerable⁴. However, a recent review of museum specimens prompted the suggestion that two species may be involved¹¹, and that the population endemic to western Kenya is probably Critically Endangered. Its habitat in western Uganda is also under serious threat⁷. Given the difficulties in observing these secretive birds in dense stands of papyrus, comparatively little is known about them. We review current knowledge of the taxonomic status and distribution of the species, and present notes on the appearance and vocalisations of those observed in south-west Uganda and western Kenya in July–August 2002. We also outline the key

identification features in the hope that future attention will be focused on the species and its taxonomic status be clarified.

Distribution and habitat

Papyrus Yellow Warbler is endemic to swamps in East and Central Africa. Some confusion exists over the distribution of what is currently considered to be the nominate race. Irwin & Turner¹¹ suggest that it persists in two widely disjunct populations, whereas Urban *et al.*⁹ consider that its distribution is contiguous. In reality, the situation is not certainly established. It is well known from several localities in the Albertine Rift, with a stronghold in south-west Uganda, Rwanda and northern Burundi. This form has also been recorded from swamps on the western border of Tanzania (with Rwanda/Burundi) and two areas in the eastern Democratic Republic of Congo^{8,19,20}. A second population of *C. g. gracilirostris* was discovered in Kenya in the 1960s⁶, where it is known from Lake Kanyaboli and nearby Yala swamp and several swamps on the Kenyan (northern) shore of Lake Victoria². At the time of the discovery, it was assumed that the bird would subsequently be proved to have a largely continuous distribution between Kenya and south-west Uganda. However, the species appears to have a spotty distribution in eastern Uganda, with single sight records from Lake Mburo¹⁶, Lake Nakuwa⁷, Lutembe Bay⁷ and Makokobe swamp, but at these locations it appears to be less common than elsewhere. Despite extensive searches of those

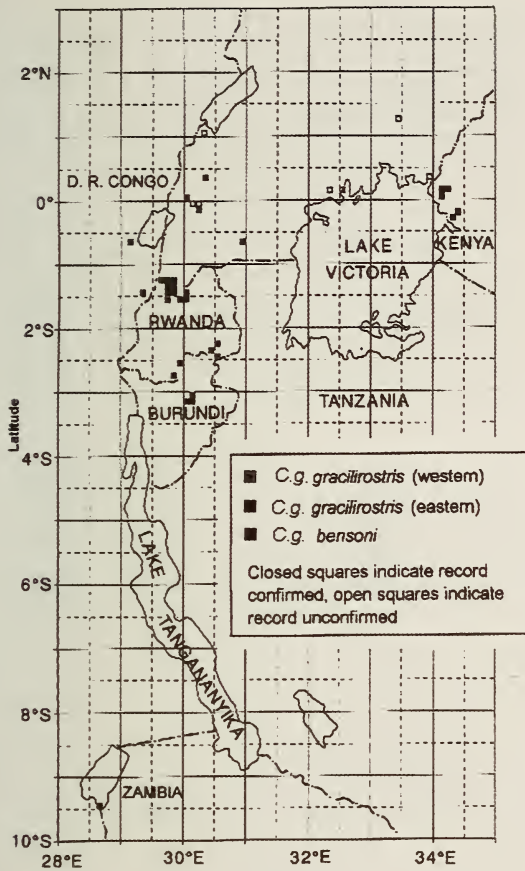


Figure 1. Distribution of the three populations of Papyrus Yellow Warbler *Chloropeta gracilirostris*. Solid squares indicate confirmed records and open squares unconfirmed records.

swamps fringing Lake Victoria, we found none in eastern Uganda, although a more widespread search, particularly in the Lake Kyoga basin, may clarify the extent to which the two populations are indeed disjunct. It is also noteworthy that the similar African Yellow Warbler *Chloropeta natalensis* frequently occurs at the edges of papyrus swamps and represents a potential identification pitfall for inexperienced observers.

A second subspecies, *C. g. bensoni* Amadon¹ is known only from Lake Mweru at the mouth of the Luapula River in Zambia and from Nkole in adjacent Democratic Republic of Congo (Fig 1). Although this population has been known since 1938, it was not afforded taxonomic status until 16 years later. *C. g. bredoi* Schouteden¹⁷ from Nkole,

described the following year, is a synonym of *bensoni*¹¹.

The Zambian and Kenyan populations are apparently confined to papyrus. In the Yala swamp complex of Kenya, Papyrus Yellow Warbler prefers tall, undisturbed papyrus, particularly near water, and is absent from smaller, more isolated swamp fragments (O Nasirwa pers. comm.). In contrast, the western population is not restricted to papyrus, occurring most frequently in mixed patches of papyrus and other wetland vegetation. It has been suggested that this is only true at altitudes above 1,500 m, below this the species being excluded from other types of wetland vegetation through competition with African Reed Warbler *Acrocephalus baeticatus*, which is absent at higher altitudes²⁰. In Uganda, we found the two coexisting in *Cladium* swamps at 1,300 m. Moreover, Papyrus Yellow Warbler occurs in many small, disturbed marshes that fringe lakes in south-west Uganda.

Taxonomy

It has recently been suggested that the population in western Kenya is specifically distinct from that in the Albertine Rift¹¹, based on the much narrower, more *Acrocephalus*-like bill of two specimens taken in Kenya⁶. We have examined one of these, in the National Museums of Kenya (Nairobi), a female collected by Peter Britton at Lake Kanyaboli on 8 June 1969 (NMK 852). We consider that this bird's bill may have been pinched by over-tightening the twine around the bill during preparation (Fig 6), a possibility supported by field measurements of one we trapped at Lake Kanyaboli, which had a considerably broader bill than the specimen (Fig 7). However, subtle plumage differences between those we observed in Kenya and in the Albertine Rift and, more importantly, totally different songs lead us to suspect that the two populations may indeed constitute species or at least subspecies. Recordings of the Zambian population and more distinct plumage differences between this population and the other two suggest that it may be specifically distinct.

Description

C. g. gracilirostris (Kenya)

Adult: sexes alike. General structure, apart from the bill, recalls that of a short-winged, slightly heavily built *Acrocephalus* warbler (Fig 8). Crown to hindneck and ear-coverts olive-brown with a

slight greenish wash, grading into a more rufous olive-brown, lacking the greenish tinge on the mantle and rump. Tail darker brown and inner rectrices longer than the outer ones. Secondaries and coverts a similar dark brown. The one we trapped had paler fringes to the feathers, but this may have been a result of wear. Underparts warmish yellow, washed tawny-ochre on flanks and undertail-coverts (Fig 5). Upper breast contrasts with paler yellow throat, although this is only evident under certain light conditions. Red iris contrasting with paler eye-ring and black pupil. Legs and feet dark grey, with long claws adapted for claspings papyrus. In contrast to Irwin & Turner's¹¹ suggestion, the bill of the one we trapped was characteristically *Chloropeta*-like (Fig 7.) and considerably broader than depicted in Urban *et al*²⁰ (see Table 1). The grey upper mandible contrasts with a paler, more pinkish lower mandible. Descriptions and illustrations in Stevenson & Fanshawe¹⁸ and Urban *et al*²⁰ are almost certainly of Kenyan birds.

Immature: readily distinguishable from adults, being tawnier below, and possessing a paler iris and paler throat with some whitish buff. The gape is yellowish as opposed to bright orange and young have tongue spots.

C. g. gracilirostris (Albertine Rift)

Adult: plumage differences between those we observed at Lake Bunyonyi in south-west Uganda and at Lake Kanyaboli in western Kenya are subtle. Based on our observations, the population appears more uniform dull brown on the mantle, rump, tail and wing-coverts than birds in Kenya. Head dark brown, contrasting with paler brown mantle and

rump. Both lack olive tone to head and mantle of Kenyan birds. As in the Kenyan population, underparts warm yellow but flanks and undertail-coverts slightly less tawny-ochre than in Kenya. Warm yellow neck, breast and undertail-coverts contrast with pale yellow throat. Contrast generally more distinctive and clear-cut than in the Kenyan population, contrasting with both underparts and olive-brown ear-coverts. Legs and feet dark grey and claws long. Bill similar to that of the Kenyan population, having a dark grey upper mandible and pinkish lower mandible. Mensural data suggest that the bill may be slightly broader. Eye similar to

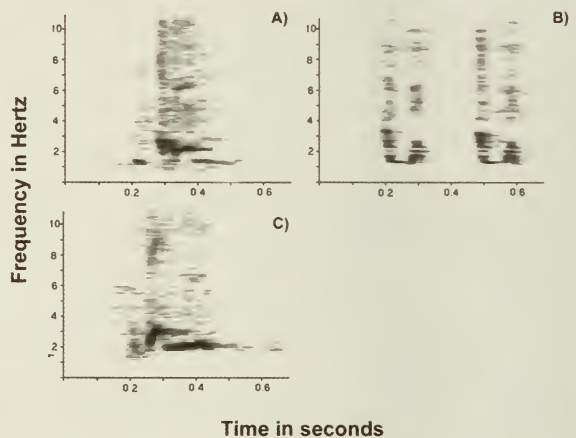


Figure 2. Three phrases of Papyrus Yellow Warbler *Chloropeta g. gracilirostris* recorded at Lake Kanyaboli, western Kenya. Recording by JM using a Audio-Technica AT835b microphone and a Sony MW-750V cassette recorder. Sonograms prepared using Spectrogram Version 2.3 software.

Table 1. Comparison of mean bill and wing measurements (mm) (\pm S.D. where available) of Papyrus Yellow Warbler *Chloropeta gracilirostris*.

Taxon	Location	Number	Culmen	Bill breadth at nostrils	Wing
<i>C. g. gracilirostris</i> ^{11,12}	Albertine Rift	4	16.0	6.1	61.5
<i>C. g. gracilirostris</i> ¹¹	Lake George	1	15.5	6.0	no data
<i>C. g. gracilirostris</i> ¹¹	Lake Kanyaboli	2	16.0 (\pm 0.00)	3.0 (\pm 0.00)	no data
<i>C. g. gracilirostris</i> ⁵	Lake Kanyaboli	9	no data	no data	61.6 (\pm 2.35)
<i>C. g. gracilirostris</i> [†]	Lake Kanyaboli	77	no data	no data	62.3 (\pm 2.37)
<i>C. g. gracilirostris</i> [†]	Lake Sare	2	no data	no data	62.5 (\pm 0.71)
<i>C. g. gracilirostris</i> [†]	Usenge	1	no data	no data	62.3
<i>C. g. gracilirostris</i> [†]	Lake Kanyaboli	1	15.1	5.1	59.0
<i>C. g. bensoni</i> ^{11, 12}	Lake Mweru	1	15.5	5.0	54
<i>C. g. bensoni</i> ¹¹	Lake Mweru	1	15.0	5.5	no data

[†]Based on field measurements of one at Lake Kanyaboli in August 2002.

[†]Based on field measurements taken by Oliver Nasirwa from Lake Kanyaboli and Yala swamp

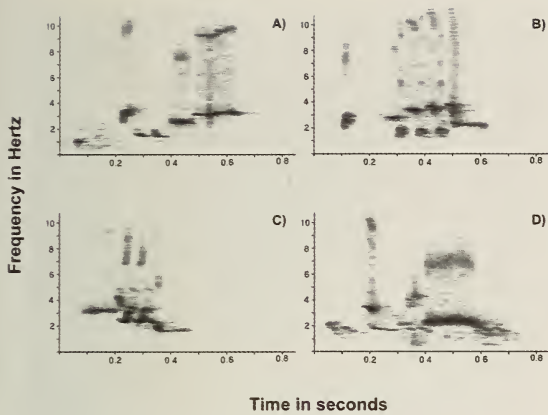


Figure 3. Four phrases of Papyrus Yellow Warbler *Chloropeta g. gracilirostris* recorded at Lake Bunyonyi, south-west Uganda. Recording by AB using a Sennheiser MKE 300 directional microphone and a Sony TCM-5000EV cassette recorder. Sonograms prepared using Spectrogram Version 2.3 software.

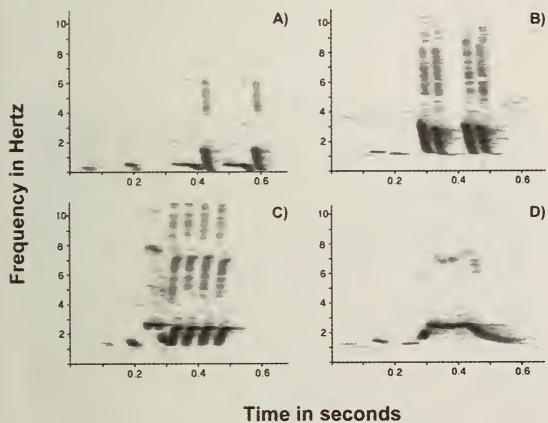


Figure 4. Four phrases of Papyrus Yellow Warbler *Chloropeta g. bensoni* recorded at the Luapula River, Zambia. Recording by Bob Stjernstedt using a AKG microphone with a 30" parabola and a Phillips cassette recorder. Sonograms prepared using Spectrogram Version 2.3 software.

that of the Kenyan population: red iris contrasting with paler eye-ring and black pupil.

Immature: unknown.

C. g. bensoni

Differs from the nominate principally in lacking any rufous or ochre wash to the flanks, rump and tail¹⁹. It appears to be smaller than *C. g. gracilirostris*, has a pale yellow¹¹ or white¹⁴ rather than reddish iris

and slightly paler grey bill and legs¹¹. A photograph of this form is included in Leonard & Beel¹⁴ and suggests that the underparts are much paler yellow, although this could be attributed to lighting conditions. Bill measurements are very similar to those obtained from the Kenyan bird we trapped (Table 1).

Vocalisations

C. g. gracilirostris (Kenya)

The bird has three main phrases, each of which is reproduced in Fig 2.

- A. *Cotchewow*—a slightly metallic whistle repeated every c3 seconds.
- B. *Choweeet Choweeet*—two almost identical metallic whistles repeated every 3.5–4.0 seconds.
- C. *Cheewowow*—a scratchier less sibilant note than (A) repeated every 3–4 seconds.

C. g. gracilirostris (Albertine Rift)

Four main phrases, each of which is reproduced in Fig 3.

- A. *Gwo gwo gwo gwo gwo*—a series of 4–5 sibilant notes uttered every 4–7 seconds.
- B. *Brob brob chrip chrip*—a series of four rattling notes, the first two slightly quieter and lower pitched, repeated every 2–4 seconds.
- C. *Cotrrrrrrreel*—a quick note followed by a rapid slightly higher pitched trill, typically uttered every 3–4 seconds, although gaps of up to 15 seconds may ensue. Males and females often utter this phrase in succession.
- D. A variation on (C) involves a more sibilant *dotdweel* repeated every 2–3 seconds, although longer gaps can ensue.

C. g. bensoni

Four main phrases, each of which is reproduced in Fig 4.

- A. *Thweet-slow-wheee*—a three-part musical phrase, the central part of which is lower pitched.
- B. *Phwit-slrlrlrl-ow*—a three-part musical warble, the middle part a higher pitched trill.
- C. *Ts-lrlrlrleeow*—a similar phrase to (B) but lower pitched and lacking the first part of the phrase.
- D. *Putdrrrrrreel*—similar to phrase (D) of the Albertine Rift population, but higher pitched and less sibilant.

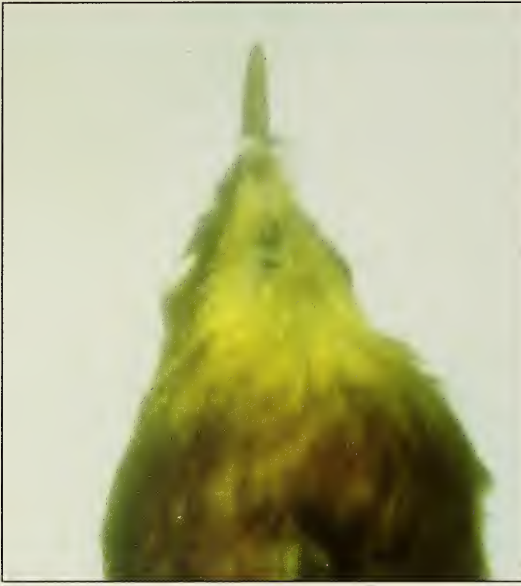


Figure 5. Papyrus Yellow Warbler *Chloropeta g. gracilirostris* specimen in National Museums of Kenya, Nairobi (NMK852); note the twine around the bill, which could be responsible for compressing it (Rob Martin)



Figure 6. Papyrus Yellow Warbler *Chloropeta g. gracilirostris* at Lake Kanyaboli, Kenya, showing the characteristically *Chloropeta*-like bill (Rob Martin)



Figures 7–8. Papyrus Yellow Warbler *Chloropeta g. gracilirostris*, Lake Kanyaboli, western Kenya (Rob Martin)

Calls have also been described as (A) *To-tso-woo* (B) *Tee-tschlee-wo* (C) *Tslo-tschlee-wo* and (D) *Tschlee-ow*¹² or as a musical *pee, p-r-r-r (ee as in sweet)*³.

Conclusions

Though we agree with Irwin & Turner¹¹ that the Kenyan population of *C. g. gracilirostris* may warrant taxonomic recognition, our reasons are quite different. The bill widths of *C. g. bensoni* and the Kenyan population of *C. g. gracilirostris* may be

slightly narrower than that of the Albertine Rift population of *C. g. gracilirostris*, but all are characteristically *Chloropeta*-like and do not appear to differ to the extent suggested by Irwin & Turner¹¹. Though the bill of Papyrus Yellow Warbler, irrespective of population, is narrower than its congeners, this is a diagnostic feature of papyrus-dwelling passerines¹².

The distribution of Papyrus Yellow Warbler is poorly known, and further research should

endeavour to clarify the species' taxonomy. Under the Biological Species Concept, it is difficult to determine the taxonomic status of allopatric taxa¹¹. The extent to which the Kenyan and Albertine Rift populations or, indeed, *C. g. bensoni* might be considered distinct under the Phylogenetic Species Concept is uncertain, and awaits analysis of their molecular phylogeny. Nevertheless, our recordings of the songs of the Kenyan and Albertine Rift populations of *C. g. gracilirostris* appear very different from each other and from *C. g. bensoni*, and we encourage other recordists to acquire additional samples of this species' vocalizations to adequately assess the extent to which these differences may relate to dialectical variation or be more substantial and important. The relevance of song as a complement to traditional morphological studies in assigning species rank has been widely acknowledged among taxonomists in recent years (Irwin *et al.*¹⁰ and references cited therein). In other warbler groups, songs are considered of primary importance in taxonomy¹⁰ and on this basis, that of the Papyrus Yellow Warbler warrants further investigation.

Acknowledgements

We thank Alfred Owino and other staff and volunteers from the National Museums of Kenya for much useful information and logistical help. Bob Dowsett, Françoise Dowsett-Lemaire, Lincoln Fishpool and Derek Pomeroy provided useful feedback on drafts of the manuscript. Bob Stjernstedt offered a recording of *C. g. bensoni*, Charlie Williams (RSPB) provided the equipment for a recording of *C. g. gracilirostris* in Uganda and Oliver Nasirwa biometrics of birds caught at Lake Kanyaboli, as well as comments on a draft. 🐦

References

1. Amadon, D. 1954. A new race of *Chloropeta gracilirostris* Ogilvie-Grant. *Ostrich* 25: 140–141.
2. Bennun, L.A. and Njoroge, P. 1999. *Important Bird Areas in Kenya*. Nairobi: East Africa Natural History Society.
3. Benson, C.W. 1956. A contribution to the ornithology of northern Rhodesia. *Occ. Pap. Natl. Mus. S. Rhodesia* 21B: 1–51.
4. BirdLife International. 2000. *Threatened Birds of the World*. Cambridge, UK: BirdLife International & Barcelona: Lynx Edicions.

5. Britton, P.L. 1978. Seasonality, density and diversity of birds of a papyrus swamp in western Kenya. *Ibis* 120: 450–466.
6. Britton, P.L. and Harper J.F. 1969. Some new distributional records for Kenya. *Bull. Br. Ornithol. Cl.* 89: 162–165.
7. Byaruhanga, A., Kasoma, P. and Pomeroy, D. 2001. *Important Bird Areas in Uganda*. Kampala: NatureUganda.
8. Carswell, M., Pomeroy, D.E., Reynolds, J. and Tushabe, H. in press. *A Bird Atlas for Uganda*. Tring: British Ornithologists' Club.
9. Fanshawe, J.H. and Bennun, L.A. 1991. Bird conservation in Kenya: creating a national strategy. *Bird Conserv. Intern.* 1: 293–315.
10. Irwin, D.E., Alström, P., Olsson, U. and Benowitz-Fredericks, Z. M. 2001. Cryptic species in the genus *Phylloscopus* (Old World leaf warblers). *Ibis* 143: 233–247.
11. Irwin, M.P.S. and Turner, D.A. 2001. A contribution to the systematics of the Papyrus Yellow Warbler *Chloropeta gracilirostris*. *Honeyguide* 47: 201–203.
12. Keith, S. and Vernon C. 1966. Notes on African warblers of the genus *Chloropeta* Smith. *Bull. Br. Ornithol. Cl.* 86: 115–120.
13. Leisler, B. and Winkler, H. 2001. Morphological convergence in papyrus dwelling passerines. *Ostrich Suppl.* 15: 24–29.
14. Leonard, P. and Beel, C. 1999. Two new resident birds in northern Zambia. *Bull. ABC* 6: 56–58.
15. Ogilvie-Grant, W.R. 1906. New species from Ruwenzori. *Bull. Br. Ornithol. Cl.* 19: 32–33.
16. Rossouw, J. and Sacchi, M. 1998. *Where to Watch Birds in Uganda*. Kampala: Uganda Tourist Board.
17. Schouteden, H. 1955. De Vogels van Belgisch Congo en van Ruanda-Urundi, VII. Passeriformes (2). *Ann. Mus. Roy. Congo Belge, Sci. Zool., Sér. IV* (4): 329–330.
18. Stevenson, T. and Fanshawe, J. 2001. *Field Guide to the Birds of East Africa*. London, UK: T. & A.D. Poyser.
19. Urban, E.K., Fry, C.H. and Keith, S. (eds) 1997. *Birds of Africa*. Vol 5. London, UK: Academic Press.
20. Vande-weghe, J.-P. 1981. L'avifaune des papyrus au Rwanda et au Burundi. *Gerfaut* 71: 489–536.

^aCentre for Ecology, Evolution and Conservation, University of East Anglia, Norwich NR4 7TJ, UK.

^bOrnithology Department, National Museums of Kenya, PO Box 40658, Nairobi, Kenya.

^cNatureUganda, P. O. Box 27034, Kampala, Uganda.

Appendix 1. List of place names mentioned in the text.

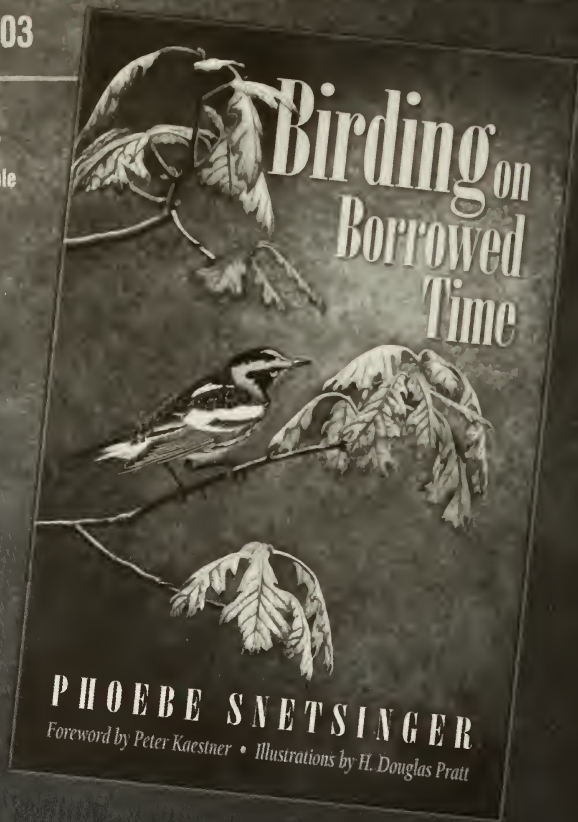
Place	Country	Coordinates	Place	Country	Coordinates
Albertine Rift	various	01°20'S 29°30'E	Lake Victoria	various	01°00'S 33°00'E
Lake Bunyonyi	Uganda	01°17'S 29°55'E	Luapula River	Zambia/ Democratic Republic of Congo	09°26'S 28°33'E
Lake George	Uganda	00°00'S 30°13'E	Lutembe Bay	Uganda	00°12'N 32°34'E
Lake Kanyaboli	Kenya	00°03'N 34°10'E	Makokobe Swamp	Uganda	00°10'N 32°21'E
Lake Mweru	Zambia/ Democratic Republic of Congo	08°55'S 28°45'E	Nkole	Democratic Republic of Congo	09°26'S 28°33'E
Lake Mburo	Uganda	00°40'S 30°56'E	Usenge	Kenya	00°03'S 34°02'E
Lake Nakuwa	Uganda	01°10'N 33°28'E	Yala Swamp	Kenya	00°03'N 34°05'E
Lake Sare	Kenya	00°02'S 34°03'E			

New ABA Publication!

Available June 2003

Birding on Borrowed Time tells, in her own words, the remarkable story of Phoebe Snetsinger, the woman who saw more birds in her life than any other human being in the history of the world (over 8,400).

The book includes 45 illustrations by renowned avian artist H. Douglas Pratt (including 16 full-color plates), appendices, indices, and a map showing Phoebe's travel destinations.



American Birding
ASSOCIATION

ABA Sales Price \$17.95 (List price \$19.95) Item #905

Contact ABA Sales to reserve your copy today!

www.americanbirding.org/abasales **800/634-7736**